

CoSN Compendium 2011

VOLUME 9, ISSUE 2

The Big Shift: Curriculum and Technology Leaders Advancing Digital Learning

BY ANN WARE

In many U.S. schools and districts the digital revolution is dramatically changing the way teachers teach and students learn. For example:

- According to *The Rise of K-12 Blended Learning* (Innosight Institute, January 2011), "In the year 2000, roughly 45,000 K-12 students took an online course. In 2009, more than 3 million K-12 students did. ... Online learning has the potential to transform America's education system by serving as the backbone of a system that offers more personalized learning approaches for all students."
- The 2011 Speak Up Survey found that 39 percent more administrators and five times as many parents would incorporate online classes into their vision for the ultimate school in 2010 than would have in 2008.
- Multiple states, including California, Florida, Georgia, and Texas, are undertaking digital textbook initiatives that allow for new ways of teaching and learning.
- There has been an explosion of new devices and one-to-one implementations in K-12 schools, including "BYO" programs involving student-owned devices that can be leveraged for learning.

Only by building a common understanding of how students learn best and a shared vision for technology's role in supporting such learning can curriculum and technology leaders work together to create effective 21st century learning environments.

And yet, while some schools lead the way with innovative 21st century learning environments, others continue to educate students much as they did in decades past. One of the keys to successfully transforming our nation's classrooms is a shared vision and understanding on the part of all school and district leaders – including those who plan curriculum and those in charge of technology.

Far too often there is a disconnect between K-12 curriculum and technology leaders when it comes to the effective use of digital learning resources and technology infrastructure. For technology specialists, whose job expectations often focus largely on the technical issues related to servers, wiring and packets, there is a

danger that they can lose sight of what is important to schools: student learning. At the same time, their curriculum colleagues may be caught in the "this is the way we've always done it" head-set and discount the important role digital technologies can – and some would say *must* – play in preparing students for their future.

When talking with district curriculum and technology leaders about the most significant barriers to strategic collaboration, examples include:



CoSN COMPENDIUM 2011

- The fast day-to-day pace at which district leaders work;
- A lack of district vision centralizing each department's work on student success;
- A silo approach that has each department narrowly focused on doing "their own" work;
- A lack of a common language around effective research-based teaching and learning strategies and how appropriate technology tools can enable them.

The good news is that a growing number of K-12 education leaders are reaching across these barriers and acknowledging the need for students to have engaging and robust digital experiences that are aligned to state standards and based on what curriculum experts already know about how students learn best. At the national, state and local levels, there is increasing recognition of the need for collaborative leadership, vision, and policies aimed at reimagining teaching and learning in the digital age.

An example of such collaboration on the national level is the partnership between CoSN and the Association for Supervision and Curriculum and Development (ASCD) to create a professional development course for district leaders. A regional example is taking place in Georgia where the state chapter of CoSN's CTO Council and the Georgia Association of Curriculum and Instructional Supervisors (GACIS) have shared content at one another's annual conferences and are planning joint events at which district curriculum and technology leaders meet to highlight successes at building engaging 21st century teaching and learning environments. Later in this article we will share several examples of local collaborations that point the way to what is possible when district curriculum and technology leaders work well together.

Developing Common Ground

Today's students are highly engaged in the use of 21st century technology tools in their daily lives outside of school. However,

COSN RESOURCES FOR BRIDGING THE GAP BETWEEN CURRICULUM AND TECHNOLOGY LEADERS

CoSN has been collaborating with the Association of Supervision of Curriculum and Development (ASCD) on the development of a professional development course for district leaders entitled *From Vision to Action: The Plan for 21st Century Teaching and Learning*. This course supports district leaders in their quest to create engaging 21st century teaching and learning environments in their schools. ASCD and CoSN have designed the course to give district leaders practical, step-by-step tools and techniques. Using Deming's Cycle of Plan, Do, Study, Act, district curriculum and technology leaders collaborate to draft a vision for their district;

determine how to turn that vision into action; and analyze the results of those actions. To learn more visit: cosn.org/VisionToAction

In addition, CoSN's Shifting from Print to Digital is a forthcoming leadership initiative designed to support the capacity of school district curriculum and technology leaders to create 21st century environments for students and educators. With a focus on improved learning, it will provide leadership for effective collaboration, offering such resources as district self-assessments and essential skills checklists. Stay tuned for details.

in order to use them with positive academic outcomes in mind, it remains important to associate those tools and resources with evidence-based instructional strategies.

In collaborating to build effective 21st century learning environments, both the curriculum expert and the technology leader bring to the table a wealth of expertise. For example, district curriculum specialists tend to be highly knowledgeable about research from such experts as Robert Marzano about the keys to improving student academic performance. Education technology specialists, on the other hand, have knowledge to share about technology trends and emerging applications in areas such as cloud computing, blended learning, and mobile devices that have tremendous potential for student learning and teacher professional development. Working together, the two groups can connect the dots, combining effective instructional practices with robust and engaging learning tools.



CoSN COMPENDIUM 2011

RECOMMENDED READING FOR TECHNOLOGY AND CURRICULUM LEADERS

The following literature provides a good starting point for curriculum and technology leaders looking for common ground and a better understanding of one another's perspectives.

CURRICULUM-RELATED RESOURCES FOR TECHNOLOGY LEADERS TO READ

Classroom Instruction That Works by Marzano, Pickering and Pollock (2005), ASCD

For any educator who hungers for real proof of which teaching strategies raise student achievement and by how much, this K–12 guide provides a banquet of research evidence, statistical data, and case studies. Distilling decades of information into a clear plan of action, the authors identify nine categories of instructional strategies that maximize student learning and explain the vital details you need to know about each, including: studies in effect size and percentile gain units; guiding principles for using the strategies; classroom examples of model instructional practice; charts, frames, rubrics, organizers, and other tools to help teachers use the strategies right away.

What Works in School: Translating Research Into Action by R.J. Marzano (2003), ASCD

Applying 35 years of research, author Robert J. Marzano illuminates the factors that influence student academic achievement. Using the book's research-based survey tools and action steps, you can identify your school's strengths and weaknesses,

prioritize your options, and implement a clear plan for improvement. In every chapter, answers to many once-elusive questions become crystal clear: which instructional strategies really work, why data is a critical component to school improvement, how important collegiality and professional development are, and what types of parental and community involvement make a difference.

Visible Learning: a Synthesis of Over 800 Meta-analyses Relating to Achievement by J. Hattie (2009), Routledge

This ground-breaking book was the result of 15 years research and synthesis over 800

meta-analyses on the influences on achievement in school-aged students. It builds a story about the power of teachers, feedback, and a model of learning and understanding. The research involves many millions of students and represents the largest ever evidence-based research into what actually works in schools to improve learning. Areas covered include the influence of the student, home, school, curricula, teacher, and teaching strategies. A model of teaching and learning is developed based on the notion of visible teaching and visible learning, with a focus not on test scores but on using evidence to build and defend a model of teaching and learning. A major contribution is a fascinating benchmark/dashboard for comparing many innovations in teaching and schools.

TECHNOLOGY-RELATED RESOURCES FOR CURRICULUM LEADERS TO READ

The National Education Technology Plan (2010), *The U.S. Department of Education*, and *The National Broadband Plan (2010)*, *The Federal Communications Commission*.

Published under the name *Transforming American Education: Learning Powered by Technology*, the National Education Technology Plan (NETP) focuses on advanced technologies with the potential to improve student learning, accelerate the adoption of effective practices, and use data and information for continuous improvement. It presents goals related to five essential components of education – learning, assessment, teaching, infrastructure, and productivity – with recommendations for states, districts, the federal government, and other stakeholders. The National Broadband Plan (NBP) views broadband access as an essential tool to help educators, parents and students meet major challenges in education today and help reverse patterns of low achievement. The NBP has made recommendations in support of expanding digital educational content that will ultimately serve to advance digital learning.

The Horizon Report, *The New Media Consortium*

This annual report, now in its third year, focuses on elementary and secondary school trends and the emerging technologies most

likely to impact K-12 education. In the 2011 K-12 edition, the New Media Consortium, CoSN, and the International Society for Technology in Education (ISTE) collaborated on the research. The emerging technologies explored for 2011 were: electronic books, mobile computing, augmented reality, game-based learning, gesture-based computing, and learning analytics.

Project RED (2010)

The authors of a series of earlier reports (America's Digital Schools, 2006 and 2008) teamed up recently with other education technology experts to conduct a national survey of principals and other building-level administrators at "technology-transformed" schools. The focus of their research: identifying the keys to improving outcomes while saving money. The Project RED report, *The Technology Factor: Nine Keys to Student Effectiveness Achievement and Cost-Effectiveness*, examines "what the best schools are doing to improve outcomes, which key implementation factors really work to change learning, and what most schools are not doing after they invest in technology."

Speak Up, Project Tomorrow

Project Tomorrow conducts this annual survey of students, educators and parents focusing on trends in educational technology and student needs, interests and attitudes regarding emerging technologies. The survey is conducted online in October-December with results shared several months later. Examples of the findings from the 2010 report include percentage of parents who would purchase a mobile device for their child to use for schoolwork if the school allowed it, percentage of high school students who have experienced some type of online learning, and student attitudes about filtering and cell phone use in schools.

CoSN COMPENDIUM 2011

What follow are four examples of the ways in which collaboration between curriculum and technology leaders can enable more engaging and effective teaching and learning environments. By using technology as a learning delivery tool in support of effective identified curriculum practices, we are maximizing student chances for success.

—FLIPPING THE CLASSROOM

In Marzano's work described in the sidebar on page 3 he outlines instructional strategies that are considered to have a positive effect on student academic performance. Several of these fall under the category of *direct instruction*, perhaps the most universal of all teaching methods. Effective direct instruction systematically takes students through the steps of learning a new concept, offering clear, concise explanations and illustrations and providing frequent opportunities for the learner to practice.

Digital video technology offers educators the opportunity to capture the best examples of direct instruction – whether delivered by master teachers from all over the world or recorded in their own classrooms – and share those with students in an entirely new way. In what is being referred to by many as “the flipped classroom,” video lessons are posted online for students to access asynchronously at a time suited to them, freeing up class time for two other crucial forms of instruction: *peer learning* (with students doing “homework” together in class) and *guided practice* (with the teacher offering *just in time* support regarding problems students encounter as they work).

—LEARNING MANAGEMENT SYSTEMS AND CORE STANDARDS

A second example of curriculum leaders and technology leaders working shoulder-to-shoulder to maximize student learning involves the sequencing and organization of curriculum content in such a way that students have ample opportunity to learn it. A great deal of time has been spent in recent years establishing state standards, and now much of the nation is

involved in arriving at Common Core State Standards to “provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them.”

Curriculum experts may be taking the lead in establishing these standards but technology experts have an important role to play by connecting them to comprehensive collections of sequenced, standards-based digital content as well as learning management systems (LMSs) that make it possible to assess student progress towards the standards and personalize the learning. The effective implementation and use of an LMS grounded in student-centered learning is maximized when there is effective and ongoing collaboration between district curriculum and technology leaders.

—GRAPHIC ORGANIZERS AND NONLINGUISTIC REPRESENTATIONS

Curriculum experts are well aware of the importance of students learning to represent information in a variety of ways, both *linguistic* (verbally) and *nonlinguistic* (visually). Traditionally, educators tend to talk with students about what they need to know or ask them to read about the content; these strategies are represented by linguistic representations, leaving out nonlinguistic representations that have been shown to stimulate and increase brain activity. Curriculum and technology leaders working together can agree on the value of digital graphic organizers to assist students in generating nonlinguistic representations. The use of concept mapping and graphing software can be extremely valuable in establishing an “image” of the knowledge in student's minds.

—COLLABORATING USING SOCIAL MEDIA

A fourth area in which technology and curriculum specialists can work together towards improved learning and student engagement relates to the use of social media and other Web 2.0 technologies. *Collaborative learning* has long been recognized by curriculum leaders as a valuable instructional strategy. Technology leaders can help connect students and



CoSN COMPENDIUM 2011

ADVICE FROM A COLLABORATIVE DISCUSSION

In late September 2011, technology leaders participating in CoSN's Georgia CTO Clinic in Lawrenceville, GA, joined the state curriculum leaders at the Georgia Association of Curriculum and Instructional Supervisors fall conference in Athens, GA, via video conference to discuss ways of establishing a consistently collaborative working relationship between technology and curriculum leaders. Takeaways included:

- Curriculum people need to understand what technology people can do and invite the technology people to visit classrooms with them and see the instruction that is taking place.
- Joint collaborative walk-throughs make it possible to observe the engagement and see where the barriers lie; the walk-throughs make it more real for everyone.
- Both groups need to make time for conversations about how instructional technology is supporting student achievement.
- Technology should follow the curriculum identified needs. Curriculum leaders should be involved, from the start, in planning for technology implementations.
- With funds being more limited than ever, it's important for all district leaders to collaborate and work together on budgeting issues; at the end of the day, it's necessary to work harder and figure out ways of doing more with less.
- It is important for technology leaders to move away from the "dark side" – from being the ones who block content and say "no." A team with knowledge of curriculum and the ways in which social media and Web 2.0 technology can be used instructionally should take the lead.
- Technology builds the infrastructure for teaching and learning but that is only mechanics. The important question is what is the instructional purpose.

teachers with digital tools that support such collaboration. As recognized by the 2010 Project RED report, *The Technology Factor: Nine Keys to Student Achievement and Cost Effectiveness*, Web 2.0 tools provide powerful support for online collaboration and have the potential to increase learning productivity and student engagement. For example, the Project RED researchers found that:

- Web 2.0 social media substantially enhance collaborative productivity, erasing the barriers of time, distance, and money and extending collaboration beyond a student's immediate circle of friends to include mentors, tutors, and experts worldwide;
- Real-time collaboration increases student engagement – one of the critical factors for student success – and reduces disciplinary actions; and
- Online discussion boards and tutoring programs can extend the school day and connectivity among learners and teachers.

CoSN's *Participatory Learning in Schools: Leadership and Policy* initiative also supports the value of Web 2.0 tools for providing collaborative learning experiences. The initiative provides a Transformative Leadership self-assessment tool that can serve as a starting point for dialog between curriculum and technology leaders around collaborative learning and the ways technology tools can enable it.

Nurturing Collaboration

CoSN recently talked with curriculum and technology leaders from three districts who are working collaboratively to reimagine student learning environments. Each of them recognized the value in the development of a trusting relationship that serves to synchronize efforts and create a common language for the creation of an engaging student-centered learning environment.

In the Bartholomew Consolidated School Corporation (BCSC), in Columbus, Indiana, the superintendent, curriculum and technology leaders all agreed to focus on Universal Design for Learning (UDL) – an approach based on learning sciences research – as an educational framework to accommodate individual learning differences and reduce physical, cognitive, intellectual, and organizational barriers to student learning.



CoSN COMPENDIUM 2011

Bill Jensen, BCSC's director of secondary education, reflects that technology is an integral part of UDL, which meant that Mike Jamerson, director of technology services, had a crucial role to play.

Jamerson worked closely with Jensen and with Karen Garrity, director of elementary education, on a planning process that involved starting with the end in mind (improved learning for all students with a special emphasis on those whose needs were not being met effectively by traditional tools) and considering which technology implementations would be most helpful in meeting their goals. Garrity indicated that, "We really came to

and leadership, and Todd Hindmon, director of technology leadership, both feel strongly that you cannot bring about change until people know what it looks like. Their collaborative work has resulted in joint visits to schools to observe learning taking place and dialog about how current and future technology tools can engage today's learner. Together, they engaged over 130 Douglas County stakeholders – including parents, students, teachers, and community members – in demonstrations and discussions of what learning looks like in a 21st century environment.

Crediting Magouryk for a big part of the success of recent

initiatives, Hindmon explains, "She understands the power of technology to engage the learning environment. Her understanding how it needs to be used in the classroom has given us power." Examples of valuable educational initiatives that are moving forward based on this collaboration include a "bring your own technology" (BYOT) program for high school students; working with the Georgia Department of Education on virtual learning opportunities; incorporation of technology into the

MATCHING EFFECTIVE INSTRUCTIONAL STRATEGIES WITH TECHNOLOGY ENABLERS

Here are just a few examples of crucial instructional strategies from "Classroom Strategies that Work" (Marzano, Pickering and Pollock) matched to 21st century tools with the potential to make that form of instruction more powerful or effective.

CATEGORY	21ST CENTURY TOOLS
Identifying similarities and differences	Electronic mind maps provide students opportunities to represent similarities and differences in graphic or symbolic form, which enhances students' understanding of and ability to use knowledge.
Summarizing and note taking	Word processors and/or moderated wikis allow students' to effectively summarize by deleting, substituting and doing other editing to arrive at the essential information.
Generating and Testing Hypotheses	Simulated science labs online make it easier to perform a variety of experiments – including those involving dangerous substances or things too small or distant to observe in real life – and provide students practice in generating, testing, and explaining hypothesis and resulting conclusions.
Setting Objectives and Providing Feedback	Social media tools provide students opportunities to receive and provide frequent feedback to their peers and teacher specific to an identified target of knowledge or skill.

realize how important it was to plan for the technology on the front end."

In Douglas County Schools in Douglasville, Georgia, Cathy Magouryk, associate superintendent of student achievement

performing arts; the establishment of a STEM high school; and working with Intel on a blended professional learning model.

In Mountain Brook School District, in Mountain Brook, Alabama, the driving force for the collaborative work between curriculum



CoSN COMPENDIUM 2011

and technology leaders is acknowledging the characteristics of today's learners. Missy Wildman-Brooks, director of curriculum and instruction, Lanie Kent, assistant director of curriculum and instruction, and Donna Williamson, director of technology, all committed to reading books together about 21st century learners and what they learned from their reading and the discussions that followed drove their decisions.

Sharing the self-education and decision-making process with teachers and community members was critical as well. One successful project that grew out of this district-wide collaboration was the establishment of "eDays," where students learned digitally, without coming into the classroom. As a team, district leaders worked with teachers, parents and the community to provide off-site learning opportunities for students on eDays. Due to such collaborative efforts, eDays were a huge success and 90 percent of the Mountain Brook teachers said they were adequately trained and had the resources to pull them off. The community supported the effort, with libraries' being available to students and businesses opening their Wi-Fi networks for student use.

Moving Forward Together

The leadership teams above were invited to share suggestions for other district administrators seeking to develop similarly effective collaborative working relationships. Their advice, along with that offered as part of CoSN's *Framework of*

Essential Skills of the K-12 CTO regarding "Understanding the Educational Environment" led to the following list:

- Identify and promote ways in which technology can support educational best practices, address the diverse needs of students, and maximize student learning.
- Create cross-functional teams for appropriate aspects of the district's technology program.
- Lay the groundwork by discussing why collaboration is important, aiming for consensus, and agreeing to honor the decisions you make together.
- Sit down together to talk about your vision and then get out together into the schools to see what that looks like.
- Build an environment that encourages team member communication.
- Collaborate with stakeholders to create a vision for how technology will support the district's strategic goals
- Build an environment of trust through communication and transparency about decisions and how they are made.
- Make time to stop and listen to each other – which includes sharing each other's calendars.

This publication is one of three monographs that make up the 2011 CoSN Compendium, a collection of resources for members of the Consortium for School Networking (www.cosn.org), a national non-profit organization that promotes the use of information technologies in K-12 education to improve learning.

The Big Shift was edited by **Judy Salpeter** and produced by CoSN with art direction by **Glenn Hennessey**. It was written by **Ann Ware**, project director for several CoSN initiatives, including *Shifting from Print to Digital*, and former CTO and Associate Superintendent for Instructional Technology, GA Department of Education.

CoSN would like to thank the following sponsors for their support of the 2011 Compendium: Adobe Systems, AT&T, Edline LLC, Gartner, GlobalScholar, Houghton Mifflin Harcourt, HP, IBM Corporation, Intel Corporation, Lenovo, Lightspeed Systems, Pearson, PolyVision, Promethean, Qualcomm, SAS, SchoolDude.com, and SMART Technologies.

Thank you also to the following media sponsors for their support:

C. Blohm & Associates, Inc., Center for Digital Education, District Administration, EdTech Magazine, Education Week, eSchoolNews, JDL Horizons, Marketing Projects, Inc., RedRock Reports, Scholastic Administrator, Tech & Learning, T.H.E Journal, and the Winter Group.

NOTE: CoSN is vendor neutral. The mention of specific products, services or companies in this monograph is in no way an endorsement.

- Agree to have flexibility on both sides; you won't be able to say "yes" or "no" to everything.
- Be sure to honor differences and commit to a common purpose.

All of this is possible in districts where technology and curriculum leaders are committed to

collaboration, communication and a shared vision of preparing students for their future.

